

TRANSLATION (HM-667PCT -- IPER) :

**TREATY ON INTERNATIONAL COOPERATION IN THE
AREA OF PATENTS**

PCT

**INTERNATIONAL PRELIMINARY EXAMINATION REPORT
ON PATENTABILITY**

(Chapter II of the Treaty on International Cooperation in the Area of Patents)

Applicant's or Agent's File Ref. 41 930.gi.nb	FOR FURTHER ACTION	See Form PCT/IPEA/416
International Application No. PCT/EP2004/004830	International Filing Date (Month/Day/Year) May 6, 2004	Priority Date (Month/Day/Year) May 7, 2003
International Patent Classification (IPC) or National Classification and IPC B21B45/02, C21D1/63		
Applicant SMS DEMAG AKTIENGESELLSCHAFT et al.		

1. This international preliminary examination report has been prepared by the duly commissioned International Preliminary Examining Authority according to Article 35 and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 pages, including this cover sheet.
3. This report is also accompanied by ANNEXES; these comprise
 - a. ☒ (sent to the applicant and the International Office) a total of 6 pages; these are
 - ☒ pages of the description, claims, and/or drawings which have been amended and are the basis for this report and/or pages containing rectifications that have been approved by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
 - ☐ pages that replace earlier pages but which, for the reasons given in field No. 1, item 4, and in the supplementary field, in the opinion of this Authority, contain a change that goes beyond the disclosed contents of the international application in the version originally submitted.
 - b. ☐ (sent only to the International Office): (please specify the type and number of the electronic data carrier(s)), which contain a sequence listing and/or the tables that belong to it, only in computer-readable form, as specified in the supplementary field regarding the sequence listing (see Section 802 of the Administrative Instructions)

4. This report contains indications relating to the following items:

<input checked="" type="checkbox"/> Field No. I	Basis of the report
<input checked="" type="checkbox"/> Field No. II	Priority
<input type="checkbox"/> Field No. III	Nonestablishment of opinion with respect to novelty, inventive activity, and commercial viability.
<input type="checkbox"/> Field No. IV	Lack of unity of invention.
<input checked="" type="checkbox"/> Field No. V	Substantiated determination under Article 35(2) with respect to novelty, inventive activity, and commercial viability; documents and declarations in support of this determination.
<input type="checkbox"/> Field No. VI	Certain documents cited
<input type="checkbox"/> Field No. VII	Certain defects in the international application
<input type="checkbox"/> Field No. VIII	Certain observations on the international application

Date of submission of the petition: October 2, 2004	Date of completion of this report: March 23, 2005
Name and mailing address of the office assigned to perform the preliminary examination: European Patent Office D-80298 Munich Tel: +49 89 2399-0 Tx: 523656 epmu d Fax: +49 89 2399-4465	Authorized Officer: Forciniti, M. Tel: +49 89 2399-7903

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PATENTABILITY.**

International File No.: **PCT/EP2004/004830**

Field No. I Basis of the Report

1. With respect to the **language**, the report is based on the international application in the language in which it was submitted unless otherwise indicated under this item.
 - ☐ The report is based on a translation from the original language into the following language, which is the language of the translation, which was submitted for the following purpose:
 - ☐ international search (under Rules 12.3 and 23.1 b))
 - ☐ publication of the international application (under Rule 12.4).
 - ☐ international preliminary examination (under Rule 55.2 and/or Rule 55.3).
2. With regard to the **constituent parts*** [see next page for footnote] of the international application, the report is based on *(replacement pages which were submitted to the application office in compliance with a request according to Article 14 are considered "originally filed" in the context of this report and are not attached to the report)*:

Specification, pages:

4-10	as originally filed
1-3, 3a	received on March 7, 2005 with fax

Claims, Nos.:

5-12	as originally filed
1-4	received on March 7, 2005 with fax

Drawings, Pages:

1/4-4/4	as originally filed
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☐ a sequence listing and/or any accompanying tables – see supplementary field regarding the sequence listing.

3. ☐ The amendments have resulted in the cancellation of:
 - ☐ the description: pages
 - ☐ the claims: Nos.
 - ☐ the drawings: sheets/figures:
 - ☐ the sequence listing (*exact details*):

- ☐ any tables belonging to the sequence listing (*exact details*):
- 4. ☐ This report has been prepared as if (some of) the amendments attached to this report and listed below had not been made, since for the reasons specified in the supplementary field they are considered by this Authority to go beyond the disclosure as originally filed (Rule 70.2 c).
 - ☐ the description: pages
 - ☐ the claims: Nos.
 - ☐ the drawings: sheets/figures:
 - ☐ the sequence listing (*exact details*):
 - ☐ any tables belonging to the sequence listing (*exact details*):

*If Item 4 applies, some or all of these pages can be furnished with the comment "replaced".

**INTERNATIONAL PRELIMINARY
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Field No. II Priority

1. ☒ This report was prepared without consideration of the claimed priority, since the following requested documents were not submitted by the prescribed deadline:
 ☒ Copy of the earlier application whose priority was claimed (Rule 66.7(a)).
 ☐ Translation of the earlier application whose priority was claimed (Rule 7(b)).
2. ☐ This report was prepared without consideration of the claimed priority, since the priority claim proved invalid (Rule 64.1). Therefore, for the purposes of this report, the international application date is regarded as the authoritative date.
3. Any additional comments:

Field No. V Substantiated determination according to Article 35(2) with respect to novelty, inventive activity, and commercial viability; documents and declarations in support of this determination.

1. Determination

Novelty (N)	Yes:	Claims 1-12
	No:	Claims
Inventive Activity (AI):	Yes:	Claims 1-12
	No:	Claims
Commercial Viability (CV):	Yes:	Claims 1-12
	No:	Claims

2. Documents and Declarations (Rule 70.7):

See attached page.

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Re Item V.

1. The following documents are cited in the present office action:

D1: DE 25 48 154 A (SACK GMBH MASCHF) May 5, 1977 (1977-05-05)

D2: EP 0 960 670 A (KAWASAKI STEEL CO) December 1, 1999 (1999-12-01)

2. Novelty of **Claims 1 and 7**:

Document **D1** discloses a method and a device for cooling or quenching slabs and sheets in accordance with the introductory clauses of **Claims 1 and 7**. Both claims differ from **D1** by their characterizing clauses, especially by virtue of the fact that cooling water is directed at both sides of the slabs and sheets.

Claims 1 and 7 are thus novel in accordance with Article 33(2) PCT.

3. Inventive Activity of **Claims 1 and 7**:

Document **D1** is regarded as the closest prior art for the object of **Claims 1 and 7**. The aforementioned distinguishing features produce constant flow on both sides of the slab or sheet. This makes it possible to achieve higher and more uniform cooling rates during quenching, so that waviness and unevenness can be avoided.

The technical objective to be achieved can thus be seen, proceeding on the basis of **D1**, to be improvement of the quality of the quenching process.

To achieve this objective, cooling water is directed at both sides of the slab, which is vertically oriented in the cooling bath. This solution to the problem is not revealed in either **D1** or **D2**. **D1** shows only that the slab is submerged in a cooling basin. **D2** shows that the slab, which is horizontally oriented in a cooling basin, is sprayed from below with cooling water.

Accordingly, the idea of vertically orienting the slab and directing cooling water at both sides of the slab is not suggested even by the combination of **D1 and D2**.

Claims 1 and 7 are thus inventive in accordance with Article 33(3) PCT.

4. **Claims 2 to 6 and Claims 8 to 12** are dependent on **Claims 1 and 7**, respectively, and thus also meet the requirements of the PCT with respect to novelty and inventive activity.

5. The object of **Claims 1 to 12** is undoubtedly commercially viable (Art. 33(4) PCT).